FLIGHT
The AIRCRAFT ENGINEER & AIRSHIPS

First Aero Weekly in the World
Founder and Editor: STANLEY SPOONER
A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport
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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

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Oct. 20	Lecture, "The Langley Machine and the Hammondsport Trials," by Griffith Brewer, before R.Ae.S.
Oct. 22–30	Aero Exhibition, Prague
Nov. 3	Pulitzer Trophy Race.
Nov. 3	Lecture, "Manœuvres of Getting Off and Landing," by Sq.-Ldr. R. M. Hill, before R.Ae.S.
Nov. 12–27	Paris Aero Salon
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Dec. 15	Lecture, "Development of the Fighting Aeroplane," by Capt. F. M. Green, before R.Ae.S.
1922.	
Jan. 5	Lecture, "Specialised Aircraft," by Wing-Com. W. D. Beatty, before R.Ae.S.
Jan. 19	Lecture, "Aeroplane Installation," by Brig.-Gen. R. K. Bagnall-Wild, before R.Ae.S.

EDITORIAL COMMENT

THERE can be no question but that the aeroplane and the airship can render immeasurable service to civilisation by the rapidity and certainty with which they can open up communications in unsettled country, and by ground surveys of tracts across which it is desired to establish roads and railways in virtually unknown and unexploited lands. Already a great deal has been accomplished in Canada and other sparsely populated countries by way of forest surveys, which have brought in a few days information and knowledge which it would, without the assistance of aircraft, have taken months to gather, even if it were possible at all. Fresh ground is now being broken in Australia by an explorer, Mr. Francis Birtles, who has undertaken an aeroplane journey across the centre of the Continent. His route takes him from Adelaide north to Oodnadatta and thence to Alice Springs, which lie at the foot of the Macdonnell Range almost in the centre of Australia. He is to keep a look-out *en route* for pastoral, agricultural and mineral areas, and is to carry out a rough aerial survey for the best route for the proposed railway from the south to the north of the Continent. He is also to fly across the inland sea known as Lake Eyre, where it is believed there may be fertile islands. He expects to gain in five weeks more information than could the best equipped land exploration expedition in a year.

Railway Survey by Air

We do not doubt for a moment but he will. So far, we have very little to guide us in the way of actual survey work of the kind upon which this Australian air explorer is now engaged. But we have the records of many difficult reconnaissances of almost similar character carried out during the War in the remoter theatres of hostilities. East Africa and Mesopotamia provide many such examples of excellent work done and valuable information regarding the terrain obtained by officers of the flying services. Almost invariably this information was greatly more reliable than the best maps obtainable, and this quite often in districts which had been at least partially surveyed from the ground. This being so, there is every reason to believe that such cases as the Australian survey now in progress will result in sufficiently

accurate data being obtained to enable the authorities to decide upon the route for the Transcontinental railway without going to all the expense, trouble and delay of carrying out a detailed ground survey on more orthodox lines. What this means in the quicker opening up of the country to civilisation and settlement is too obvious to need labouring. On the face of it, a year will be saved in getting to work, and in such enterprises as that contemplated a year counts for a great deal. And the aeroplane and the airship—for both have their distinct spheres of usefulness in such tasks—are only now beginning to demonstrate their possibilities in this direction. We can safely look forward to the time when all preliminaries of survey work for the opening up of new countries will be accomplished by the aid of aircraft. The aeroplane will be followed by the airship, carrying a survey party whose duty it will be to dot the i's and cross the t's of the first survey. The saving of time and money will be enormous, let alone the saving expressed by the bringing into production of new areas and fresh countries.

Commemorating "R. 38"

Lord Weir, in a letter to the Press, announces that the Royal Aeronautical Society have decided to establish a fund to commemorate those who lost their lives in "R.38" and in previous airship accidents, this fund to be designated the "R.38 Fund." It is proposed to invest the capital and devote the income to the investigation of problems connected with airships or allied subjects. This course, it is believed, would best meet the wishes of the relatives of those who have given their lives in the cause of the airship. Lord Weir points out that it has been decided to suspend all Government work on airships, and it is probable that no provision will be made for the continuance of experimental or research work. It is, however, of paramount importance that some such work should be proceeding, on however small a scale, pending the time when the resumption of an airship service is decided upon. A sufficient capital sum to provide an annual grant towards the carrying out of some specific investigation—on a large or small scale according to the amount available—would be a valuable aid during this hiatus and the period of reconstruction following it, and would serve as some safeguard against the complete neglect of airship possibilities. It is proposed that the results of such investigations should be embodied in papers to be read before the Royal Aeronautical Society.

The aims and objects of such a fund as that announced by Lord Weir are altogether admirable. It is with not the smallest disrespect to the dead who have given their lives in peace and war to the cause of aerial development that we say the perpetuation of their memory in stone and bronze is not, in this practical and utilitarian age, the best manner of keeping green the recollection of their service and sacrifice. Nor do we think it is the manner which most appeals to those they have left behind. There are two ways of doing it better. The one is along the lines of that admirable institution, the Royal Air Force Fund, which aims at bettering the lot of those living dependents left behind by those who have made the ultimate great sacrifice. A single life made better, happier, and more useful to the community is worth a whole pantheon in marble. Another way is through that embodied in the suggestion we are discussing. Those whose memories the Fund is intended to perpetuate were keen pioneers of their chosen branch of aeronautical science. They lived it, thought it, dreamed of it, and at last died for it. It would be their wish that those to whom their memory is a sacred thing should assist by all means in their power to carry on the great work they themselves had left uncompleted. There could be no finer, no more appropriate, manner of commemorating their sacrifice than thus to carry on their self-appointed task. Believing that, as we do most whole-heartedly, we wish the Fund every possible success. It is needed on every count, apart altogether from its initial object. As Lord Weir says, there will be a hiatus and a following period of reconstruction, owing to what we conceive to be the short-sighted policy of the Government in the matter of the airship. We cannot afford to enter upon the reconstruction period from the point at which we stand now. Others are working hard upon airship problems, and, as it seems quite clear that the Government is no more interested and will extend no further help, it is for private enterprise to fill the gap. Thus there is the double appeal of sentiment and practicality to commend the Fund to all who are interested in aerial development, and particularly to those most identified with the lighter-than-air side.

Touring by Air

We publish in another part of this issue of FLIGHT the log of a recent tour undertaken by two business-men desirous of visiting the principal commercial centres of Europe and who chose the aeroplane as the swiftest and most elastic vehicle for accomplishing their purpose.

Not the least striking aspect of the journey is that in 18 days some 4,500 miles were covered, without the semblance of a mishap, yet the amount of interest taken in what constitutes a record business journey is almost microscopic so far as the Press and the public are concerned. Yet it is little more than a decade ago since the whole country was excitedly discussing whether Paulhan or Grahame-White would win the London-Manchester race, the conclusion generally reached being that neither would succeed in flying the bare 200 miles lying between the two cities. It is the fact that such a flight as this trip through Europe excites little or no curiosity that impresses us with the gigantic strides which have been made in the interval, short as it has been. We who have followed every phase of development keenly and have noted each step as it has been taken, each milestone as it has been passed, are apt to lose perspective and fail to realise how great the advance has been. We expect the country to be convulsed with wonder at the performance of modern aircraft, while the truth is that development has been so great that there is no wonder left. It needs something more spectacular than a prosaic business tour such as the one we are speaking of to arouse more than the mildest sensation in the mentality of the man in the street. He has become *blasé* to flight performance, and nothing less than the girdling of the earth by aeroplane will impress him as anything more than commonplace. Not that we regret this aspect of the matter. We would scarcely have it otherwise, since it proves that flight has become so matter of fact, so much a matter of daily routine, that it is now accepted simply as a means of transport, neither more nor less.

FLIGHT

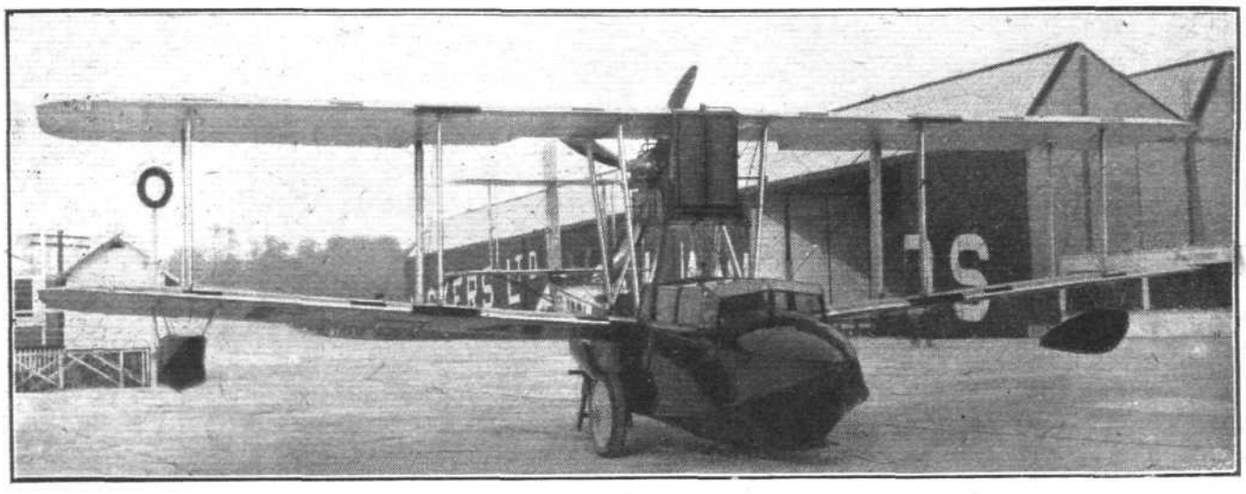
THE VICKERS "VIKING" MARK IV

Several Machines Building for Abroad

SINCE the Vickers Viking, Mark III, won the Government competition for amphibian machines at Martlesham, in September of last year, that machine has been doing a good deal of experimental work so as to obtain data for the next in the series, the Mark IV. Among the experiments and demonstrations which have been made with the older machine it will suffice to recall the trips between London and Paris—from Thames to Seine and *vice versa*—one of which was accomplished in the record time of two hours. No one who had the good fortune to witness the ease with which that machine got off from and alighted on the river could be in doubt about the enormous possibilities which the amphibian type of machine possesses. The majority of large towns have rivers running through or near them, which can be made to serve as "aerodromes," thus doing away with the expense of preparing land aerodromes, which must of necessity be some distance away from the centre of the town, and which, therefore, take up valuable time to reach.

The drawback to the amphibian type of machine is, of course, that the amphibian gear runs away with some of the load that could otherwise be utilised for paying cargo. It is yet too early in the development of the amphibian to make it possible to lay down any hard and fast rules as to what percentage of useful load will be absorbed by the land gear, and consequently it is impossible to strike a balance between the two types. On the one hand, there is the fact that no prepared aerodrome is required, and, therefore, no ground rent to pay nor ground maintenance. On the other, the amphibian will carry less useful load—by the amount equal to the weight of the land gear—than the land machine of the same power and performance. From the point of view of military (or naval) aviation, there can be little doubt that the amphibian will find its sphere of usefulness.

However, to return to the Vickers "Viking" amphibian, the experience gained with the Mark III "Viking" since its winning of the competition last year, has indicated that a more seaworthy hull would be desirable, and consequently Mr. Pierson, chief designer of Vickers' aviation department, set to work to improve upon the III. The result is shown in the Mark IV, several of which are now ready, and others nearing completion. It is not without interest to note that France has placed an order for new "Vikings," while a small country like Holland has also ordered several, some of which are about to be delivered immediately. The first machine, for France, is ready and will probably have been delivered by air by the time this week's issue of FLIGHT is distributed.



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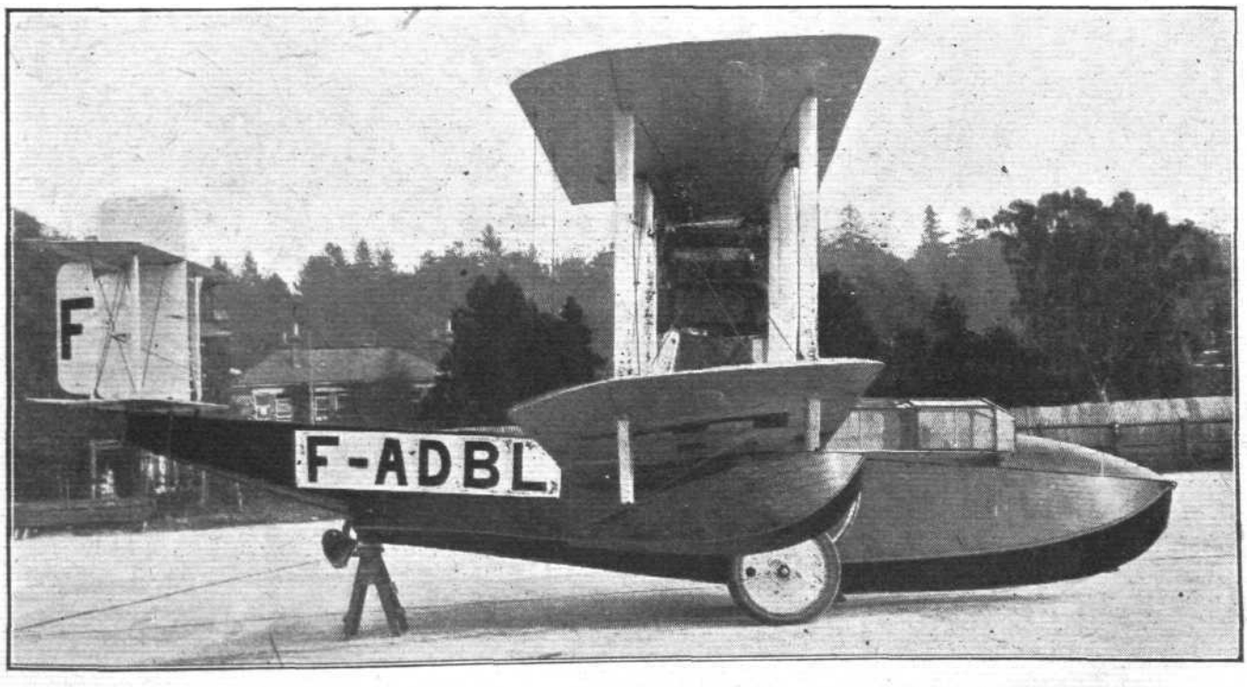
VICKERS "VIKING IV": Three quarter front view.



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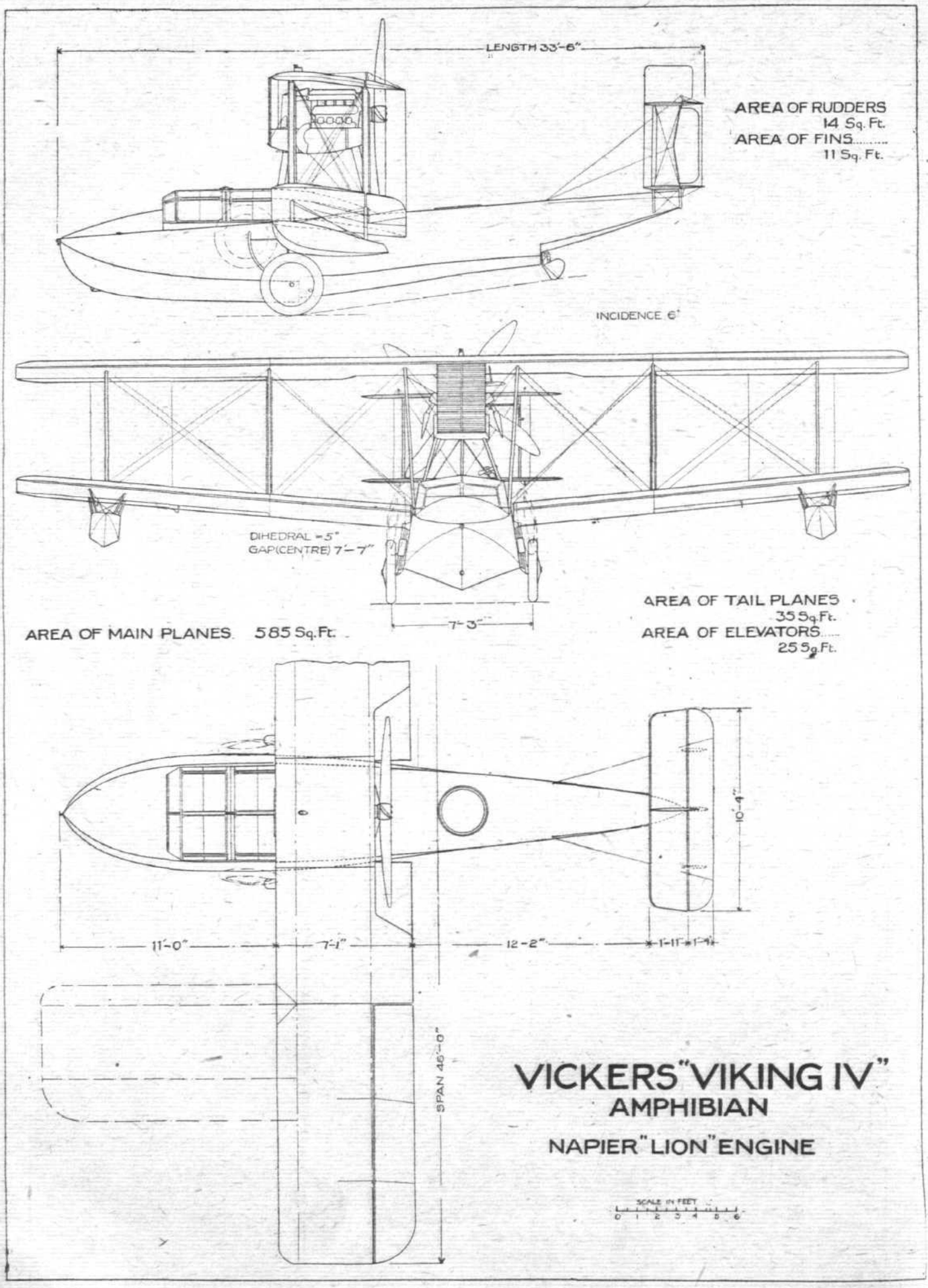
VICKERS "VIKING IV": Side view.

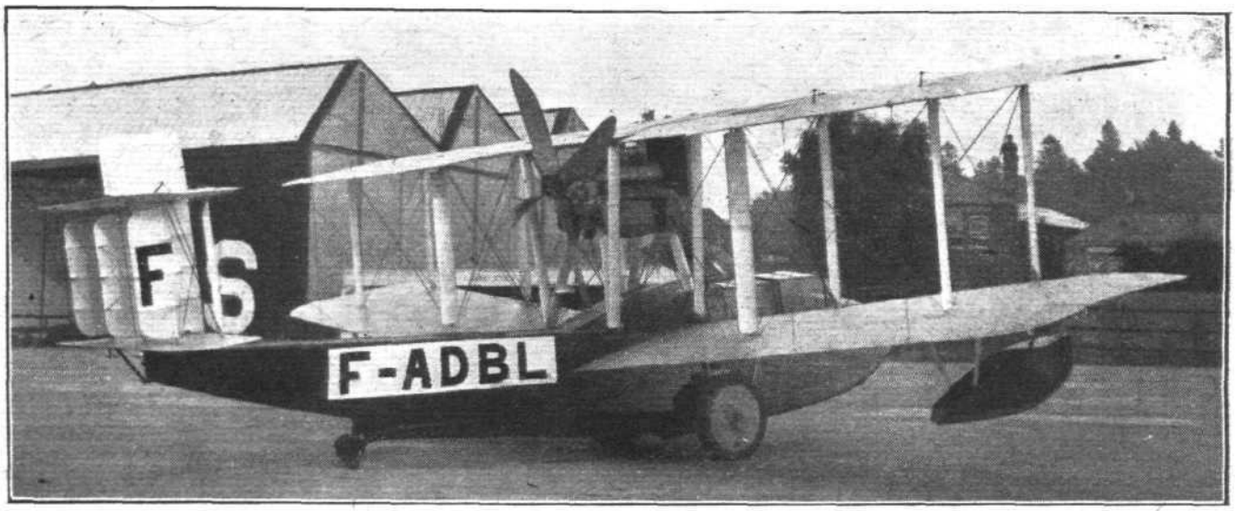


THE VICKERS "VIKING IV," NAPIER "LION" ENGINE: Plan, side and front elevations to scale.

It may be remembered that among the distinguished passengers carried between Paris and London on the Mark III was M. Laurent Eynac, French Under-Secretary of State for Air, who has evidently been so impressed by the qualities of the Mark III that he has sanctioned the ordering of the later model.

By the courtesy of Messrs. Vickers, Ltd., our representatives were permitted to inspect a number of "Viking IV's" at their Weybridge works the other day, where they had the privilege of seeing the machines being manufactured, and of having the details explained by Mr. Pierson and Mr. Muller, superintendent of the works. Except for minor changes in certain details, the Mark IV differs from the III chiefly in the beam of the hull, which has been increased by about one foot. The increase in cabin space which has resulted is astounding. The new hull is very roomy, and the behaviour of the machine both in getting off and alighting is, we understand, greatly improved.

Except for the greater beam, the lines of the boat hull are but little altered. The same two steps in the vee bottom, spaced widely apart, are found in the new machine, and the tumble-home sides of the narrower hull have also been retained. The construction is the same as before, with a planking of mahogany built up on the "Consúta" principle, invented by Mr. Saunders of Cowes. The inner and outer skins have their strips at right angles to one another, and each makes an angle of approximately 45 degrees with the line of flight. The main frames are also of mahogany, while the intermediate timbers and longitudinal stringers, as well as keel, chines and gunwales, are of rock elm. In spite of the extra beam, the new hulls are very little heavier than the old one, due chiefly to the employment of thinner but more closely spaced stringers.



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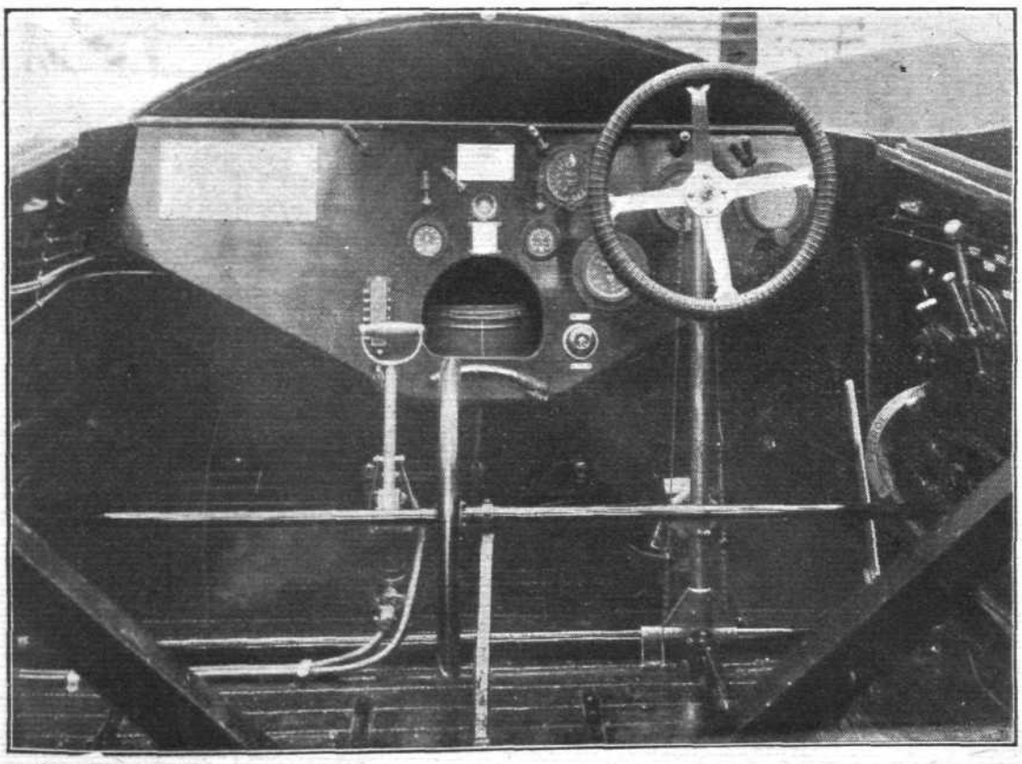
VICKERS "VIKING IV": Three-quarter rear view.

In the bottom of the hull the stringers are spaced approximately three inches apart, while the sides do not call for the same strength and consequently have their stringers spaced much wider. The planking is through-fastened to stringers and timbers and screwed to the frames. In consequence of the use of "Consuta" planking, the work of planking the boat hull is stated to be very considerably less than in the case of a boat-built hull, and the only places where it is possible for a leak to occur is where the planking joins keel and chines. These joints being well laid in red lead, with fabric strip coverings between them and the outer keel and



Vickers "Viking IV": View inside cockpit showing controls, etc. In the centre is seen the wheel for raising and lowering the landing wheels. On the left is the petrol hand pump. The lever on the right is for applying the band brakes on the wheels.

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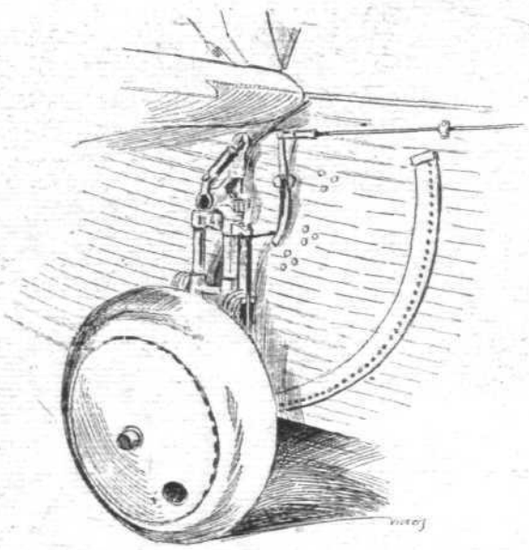
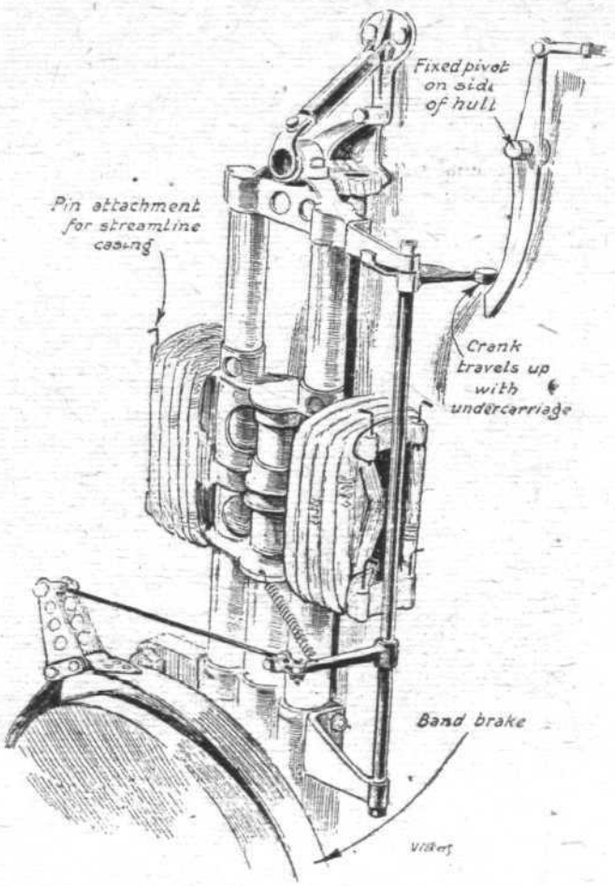
chines, there is scarcely any possibility of an appreciable leak anywhere.

The steps are vee-bottomed also—that is to say, there is no flattening out from bows to front step nor from front to rear step. The main (front) step is open, *i.e.* water is a owed to enter into the angle formed by the step bottom and the main planking. In the case of the rear step a different arrangement has been employed. The face of this step is closed, and the whole interior of the step is water- and air-tight except for small vent holes inside the hull to prevent bursting.

Just aft of the rear step is a small water rudder and tail skid combined. The shape and general design of this water rudder will be gathered from the accompanying sketch. The rudder is sprung by an oleo-pneumatic combination, and has been found, in spite of its position, immediately aft of the step, where one might expect it to be working in very disturbed water, to be very effective, not only in the water but also when performing the function of a steering tail skid.



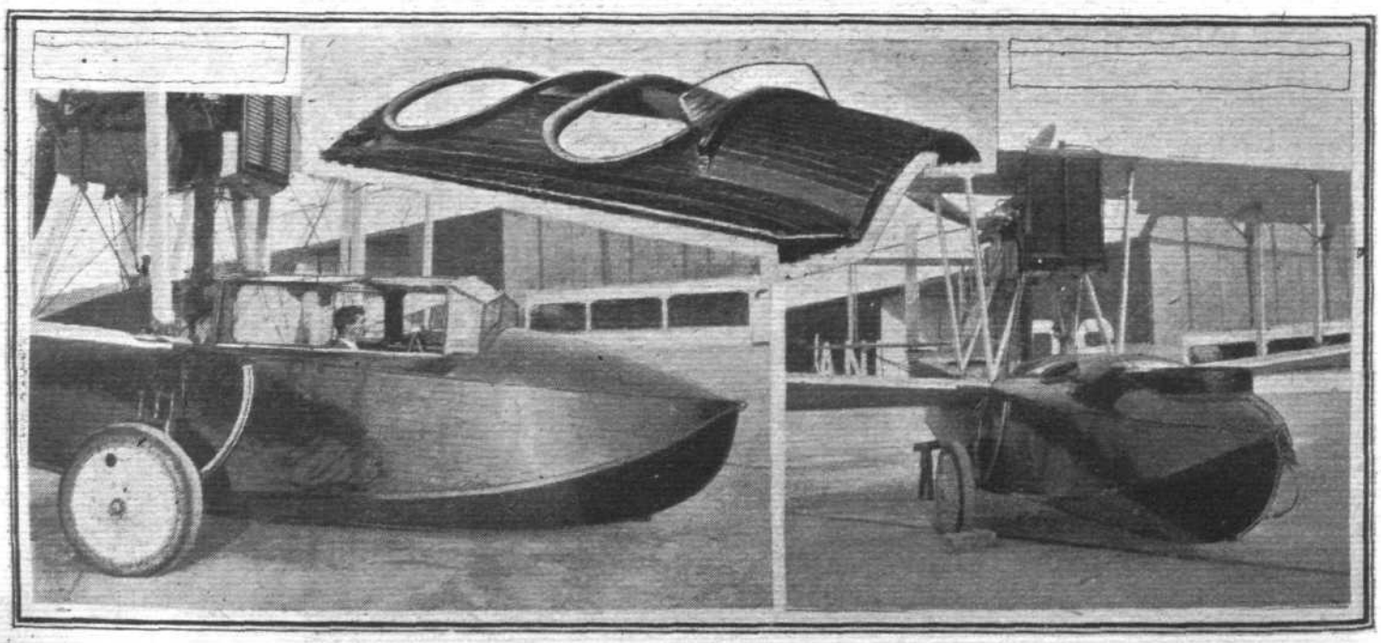
General arrangement of the landing gear of the "Viking IV."



Details of the land gear and brake mechanism on the "Viking IV."

The Amphibian Gear

Except for minor improvements the amphibian gear remains almost identical with that of the older model. Certain parts have been strengthened up or simplified, but the general principle remains the same. The telescopic vertical tube carrying the wheel is pivoted at its upper end, which has a wormwheel engaging with a worm on the end of a shaft running across the hull. This shaft is rotated by a wheel in front of the pilot *via* chains, and in rotating operates the vertical shaft which terminates at its lower end in a star wheel engaging with holes in the quadrant bolted to the sides of the hull. In rotating, the shaft swings the wheel forward and upward. As the arm of the wheel is long, and that of the operating shaft very short, the process of raising the wheel takes some little time. This, however, is of small importance, since there is scarcely any likelihood of the wheels having to be raised in a hurry. Lowering the wheels is a performance occupying a few seconds only, and in case of engine failure while flying over land it is therefore an easy matter to lower the wheels before a landing has to be made. The lower ends of the telescopic tubes are housed in a phosphor-bronze casting which has a substantial



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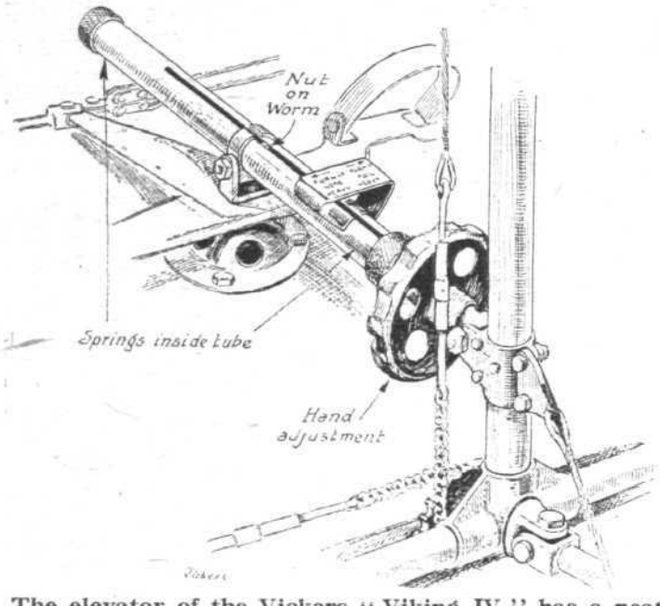
THE VICKERS "VIKING IV": Two forms of cockpits. On the left the "coach roof" cabin fitted on the machines for France, and on the right the open type cockpit with mount for Scarff gun ring adopted on the machines ordered by Holland. Inset, the deck for the open cockpit provided as an alternative to the "coach roof" cabin.

lip gripping another casting permanently fixed on the hull, and with which it engages only when the wheel is right down. The outward pull caused by the wheel at this point is transmitted across the hull by special strutting and wiring in way of step, so that there should be no possibility of it pulling off, even in a rough landing.

One very important addition has been made to the landing gear, *i.e.* the fitting of band brakes. The manner in which these have been designed to allow of the upward travel of the wheels is most ingenious. The operating gear consists of two separate units. One remains fixed on the hull and the other travels up with the wheel. One of our sketches shows the gear, and is, we think, self-explanatory. The curved portion of the vertical rocker on the side of the hull is, of course, shaped to the arc of a circle having the main pivot as its centre and the distance from this to the end of the lower-system lever as radius. The whole is extremely neat



The elevator of the Vickers "Viking IV" has a neat spring-loaded device for trimming. A small wheel allows of easy adjustment.

and light, and must be the outcome of many other alternatives. The effect of the band brakes is to enable the machine to be pulled up in about a third of the distance required without the use of brakes, so that their fitting has evidently been extremely worth while. In order to avoid one brake being applied harder than the other a compensating device of the usual form has been incorporated.

The Cockpit

One of our illustrations shows the controls and instrument board of the "Viking IV." Lateral control is by means of a wheel, and the longitudinal shaft, which runs aft until its end is in line with the rear spars, has a universal joint where it is secured to the vertical column. On the pilot's left are the wheel for raising and lowering the land gear, and the hand petrol pump. On the right he has the brake lever which operates the compensated band brakes on the wheels.

A very neat spring loaded setting is provided for the elevator. This is in the form of a worm housed in a tube mounted on the foot-bar pivot. A nut on this worm is prevented by a slot from turning. Two springs surround the worm, one on each side of the internal nut. A small duralumin wheel is mounted near the end of the worm, outside the tube. The rear end of the worm is attached to the control column. Rotation of the duralumin wheel causes the internal nut to travel along the worm, thus compressing one or other of the springs and thereby pushing the worm farther out of or into the tube, according to direction. By suitable setting the machine can be trimmed by means of the elevator instead of using a trimming tail plane. The external appearance is shown in sketch, which gives a good idea of the simplicity and neatness of the arrangement.

The seating arrangement consists of two pairs of side-by-side seats in front of the wings, and one seat aft of the wings, bringing the total up to five, including pilot.

The machine built for France is provided with two forms of accommodation. One is a simple open cockpit covering of "Consuta," while the other is a "coach-roof" cabin of Triplex glass, so arranged as to be interchangeable with the open cockpit type. The change-over takes about three-quarters of an hour. The various panels in the enclosed cabin roof are made to slide on small rollers, so that both side and front windows may, if desired, be kept open. According to Capt. Cockerell the enclosed cabin is quite nice to fly in, even from the pilot's point of view, while as regards the passengers it relieves them, of course, entirely from draught.

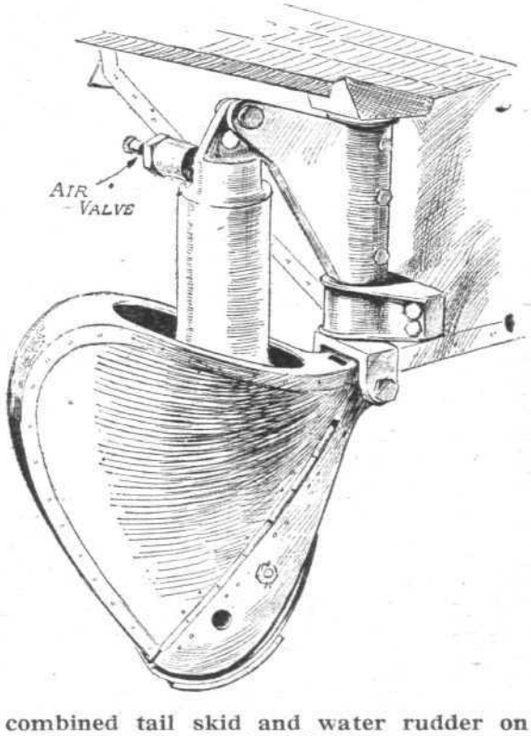
The main petrol tanks—two in number—are placed on strong floor frames in the bottom of the hull. A service tank is now incorporated in the top centre section, which adds greatly to the clean appearance of the machine.

The Napier "Lion" low-compression engine is mounted high in the gap, on a framework of struts forming a letter W as seen from in front. It drives a four-bladed pusher air screw. The radiator is placed in front of the engine, and the lower portion of the latter is enclosed in a black japanned cowling which looks very smart.

As regards wings and tail planes there is little or no alteration. In the tail a certain amount of resistance has been saved by making the upper fin a cantilever. Otherwise the biplane tail remains as before. The wings are of larger area than those of the III, but are of the same general construction.

The machine which is being built for France has a span of 46 ft. and an area of 585 sq. ft. The wings are so hinged as to fold forward, the rear struts in way of hinge being in two halves whose centres are held together by a clip, as it was found that they had a tendency to whip outward on account of the aerofoil section of each of the two halves.

The machines built for Holland have open cockpits and a forward gun position. They are also provided with dual control. These machines have a slightly larger area, their span being 50 ft. Otherwise the two machines are identical.



The combined tail skid and water rudder on the "Viking IV."

There is very little difference between the performance of the two machines, although we understand that the larger machine is, if anything, the nicer to fly. Our scale drawings show the smaller machine with folding wings, while the following particulars, apart from wing span and area, apply to both machines :—

Length overall, 33 ft. 6 ins. Span, 50 ft. Chord, 7 ft. 1 in. Gap at centre, 7 ft. 7 ins. Wing area, 636 sq. ft. Incidence, 6°. Dihedral : Top plane, *nil* ; bottom plane, 5°. Weight empty, 3,740 lbs. Petrol, 80 gals. (tankage, 115 gals.). Oil, 6 gals. Pilot, 180 lbs. Available for passengers and/or freight, 1,133 lbs. Total loaded weight, 5,675 lbs. Loading per sq. ft., 8·9 lbs. The machines can be fitted either with high-compression or low-compression "Lions." The respective performances are as follows : High-compression—speed near sea level, 118 m.p.h. ; climb to 3,000 ft., 3 mins. 16 secs. ; time to get off, 10 secs. For the low-compression engine the figures are 114 m.p.h., 4 mins. 19 secs., and 14 secs. respectively.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

COMMITTEE MEETING

A MEETING of the Committee was held on Wednesday, September 21, 1921, when there were present: Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair; Major-Gen. Sir Sefton Brancker, K.C.B.; Col. F. Lindsay Lloyd, C.M.G., C.B.E.; Lieut.-Col. A. Ogilvie; Lieut.-Col. Mervyn O'Gorman, C.B., and the Secretary.

Election of Members.—The following New Members were elected:—

Alan Samuel Butler.
Capt. John Kenneth Campbell, R.F.A.
Henry Bervon Howard.
Lieut.-Com. Colin Erskine Manisty Law, R.N. (Rtd.).
David Longden.
Edward Villiers.
Squad.-Leader Frederick Alfred Baldwin, R.A.F.
Leslie Robert Tait Cox.
Henry Phillip Folland.

Reports from the Racing Committee, House Committee, Finance Committee and Flying Services Fund Committee were received and adopted.

F.A.I. Conference, Madrid.—The Agenda for the Madrid Conference of the F.A.I., to be held on October 26, 1921, was considered, and the Delegates were instructed as to the Club's views on the various items.

The subjects to be discussed include the following:—

International Aeronautical Maps.
Superior Brevet.
Introduction of the Triptyque for facilitating foreign travel.
Competition for Aviation Engines.
Separate classification for Hydro Aeroplane records.
Regulations for Height Records.
Re-admission of late Enemy Countries into the F.A.I.
Modification of the Regulations for Marking Free Balloons and Airships.

The first meeting will be held under the Presidency of His Majesty the King of Spain.

The Royal Aero Club will be represented by Lieut.-Col. M. O'Gorman, Lieut.-Col. F. K. McClean and Lieut.-Com. H. E. Perrin.

Air Conference, Paris.—The Chairman of the Club, Brig.-Gen. Sir Capel Holden, was nominated to represent the Club on the Committee of Honour of the International Air Navigation Congress, to be held in Paris in November.

Air Conference, London.—Lieut.-Col. J. T. C. Moore-Brabazon, M.P., was nominated to represent the Royal Aero Club on the Air Ministry Committee in charge of the Air Conference to be held in London in February next.

Aviators' Certificates.—The following Aviators' Certificates were passed:—

7915. James Arthur Sweetlove.
7916. Capt. Jagpal Singh.
7917. Bartholomeus Lambertus Voskuil (Dutch subject).

Aeronauts' Certificates.—The following Aeronaut's Certificate was passed:—

279. Squad.-Leader F. A. Baldwin, R.A.F.

CLUB FLYING MACHINES

THE Club Flying Machines have been fairly well patronised during the last fortnight.

Members are reminded that the machines are at Waddon Aerodrome, Croydon, and are under the supervision of Capt. A. F. Muir.

The following machines are available:—

B.E. 2E (two seater)	..	90 h.p. R.A.F.
Avro (two seater)	..	110 h.p. Le Rhone.
Avro (two seater)	..	110 h.p. Le Rhone.
Avro (two seater)	..	110 h.p. Le Rhone.

The machines now being the property of the Club, the charge per flying hour has been reduced to £3 inclusive of oil and petrol, and insurance against damage to machine, in excess of £25.

The Club will be pleased to arrange informal races on Saturdays and Sundays if Members will kindly communicate with the Secretary.

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W.1.

H. E. PERRIN, Secretary.

THE LONDON-CONTINENTAL SERVICES

FLIGHTS BETWEEN SEPTEMBER 25 AND OCTOBER 1, INCLUSIVE

Route‡	No. of flights*	No. of passengers	No. of flights carrying Mails	No. of flights carrying Goods	No. of journeys completed†	Average flying time	Fastest time made by	Type and (in brackets) Number of each type flying
						h. m.		
Croydon-Paris	30	99	9	23	29	2 49	Breguet F-CMAD (2h. 14m.)	B. (4), D.H.4 (1), D.H.18 (2), G. (4), H.P. (3), Sp. (5), V. (1).
Paris-Croydon	34	101	15	25	30	2 41	D.H.4 G-EAMU (1h. 50m.)	B. (4), D.H.4 (1), D.H.18 (2), G. (4), H.P. (2), Sp. (7), V. (1).
Croydon-Brussels ...	4	6	4	4	4	3 21	D.H.4 O-BATO (2h. 22m.)...	D.H.4 (2), D.H.9 (1), R. (1).
Brussels-Croydon ...	3	2	3	3	3	2 17	D.H.4 O-BALO (2h. 10m.)...	D.H.4 (1), D H.9 (1).
Croydon-Amsterdam ...	6	6	6	6	6	2 44	Fokker H-NABL (2h. 30m.)	F. (2).
Amsterdam-Croydon ...	7	6	6	7	6	4 19	Fokker H-NABL (4h. 5m.)	F. (4).
Totals for week ...	84	220	43	68	78			

* Not including "private" flights. † Including certain journeys when stops were made *en route*.
‡ Including certain diverted journeys.

Air Mail Changes

THE Air Mail Service from Rotterdam to Bremen and Hamburg (referred to as "Service 4" in the Air Mail Leaflet), the General Post Office gives notice, stopped for the winter on October 1.

The morning Air Mail from London to Rotterdam and Amsterdam, on and from Monday last, October 3, is closed at the G.P.O., London, at 8.45 a.m. instead of 8.15 a.m.

Fire holds up London-Brussels Air Mail

THE Postmaster-General announces that, in consequence of the damage caused by the recent fire at Haren aerodrome, Brussels, the air mail service between London and Brussels has been suspended until further notice.

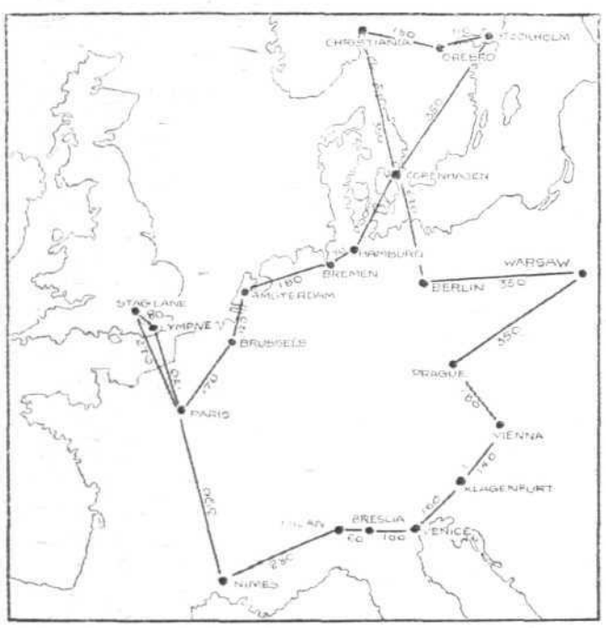
FLIGHT

TOURING EUROPE BY AIR

A Fine Performance by the D.H. Hire Department

[THE following brief account of the tour of Europe made by a machine hired from the de Havilland Hire Department is of considerable interest, not only on account of a very good performance, but equally because of the information concerning the various landing grounds, etc., of which the travellers had experience. When it is remembered that the total distance covered was about 4,500 miles, and that not a wire was broken or a mishap of any kind occurred, this brief and modest account by the pilot, Mr. A. J. Cobham, throws a strong light on the reliability of modern air travel.—ED.]

This trip was carried out on a standard D.H. 9 four-seater machine (piloted by Mr. A. J. Cobham) hired by two business men as the best and cheapest method of visiting the principal towns of Europe. In all 17 towns were visited and 4,500 miles covered in three weeks, or 56 hours' flying time, the programme being so arranged that the flying was usually done between lunch and dinner, leaving the evenings free for



social engagements and the mornings for business purposes. On a journey of this magnitude many interesting and amusing episodes naturally occurred, but it has been thought best to confine this account to an itinerary of the ground covered, with such details added as are likely to be of use to those covering the same ground, or which are of general aeronautical interest.

August 24.—*Stag Lane–Lympne*, 80 *miles. Time*, 1 *hr.*

It was impossible to get further that day, owing to dense fog in the Channel.

August 25.—*Lympne–Paris*, 170 *miles. Time*, 2 *hrs.*

August 26.—*Paris–Brussels*, 170 *miles. Time*, 2 *hrs.* 5 *mins. Brussels–Amsterdam*, 120 *miles. Time*, 1 *hr.* 20 *mins.*

At Brussels the Aerodrome is just north-east of the town, and quite close in. The approach is good, but the surface poor. The Amsterdam Aerodrome is good, with plenty of accommodation and a first-class hotel. The K.L.M. Co. are evidently anticipating some big business, and are ably assisted by the Dutch Government, which has even given them a plot of land in the centre of the town to erect a booking office.

August 27.—*Amsterdam–Bremen*, 180 *miles. Time*, 2 *hrs.* 30 *mins. Bremen–Hamburg*, 70 *miles. Time*, 1 *hr.*

The stop at Bremen was for customs only. At Hamburg the landing ground is the old Zeppelin Aerodrome. The surface is bad at present, but the authorities talk of making this the finest aerodrome in Germany when the programme they have in contemplation materialises. The only petrol obtainable was of poor quality, and the engine revs. suffered in consequence.

August 28.—*Hamburg–Copenhagen*, 200 *miles. Time*, 2 *hrs.* 30 *mins.*

Here the aerodrome is right in the centre of the town, but unfortunately there is a prospect of it being changed, as the present site is required for building purposes. By reason of its position as the Scandinavian link with the Continent, Copenhagen should become a big commercial aviation centre connecting both Stockholm and Christiania with Hamburg and Rotterdam, and thence by sea or air with London.

September 1.—*Copenhagen–Stockholm*, 350 *miles. Time*, 3 *hrs.* 55 *mins.*

Three days were spent in Copenhagen, and then the journey was resumed to Stockholm. Owing to the hilly and mountainous nature of this region, it is very difficult flying country, though extremely picturesque seen from above. The first half of the journey offers no possible landing place, but after that, the lakes would afford a landing place for seaplanes, or in winter, when they are frozen over, to aeroplanes fitted with skis. At Stockholm a landing was made at Hagerstahand Aerodrome, about 15 km. north-west of the town. No accommodation exists at present, and the surface is not very good, but work is in hand to put this right.

September 3.—*Stockholm–Örebro*, 110 *miles. Time*, 1 *hr.* 45 *mins. Örebro–Christiania*, 180 *miles. Time*, 2 *hrs.* 20 *mins.*

The next stage was to Christiania, but *en route* a stop was made at Örebro, where Capt. Saunders, who has been flying in Sweden for the last two years, was giving an exhibition on an Avro. After a short stay the journey was continued against a strong head wind, following the railway track to Manger, and thence on a compass course due west to Keller, over a mountainous trackless waste, with no possibility of landing, and no sign of any habitation. The landing was made at Keller Military Aerodrome, in the heart of the hills. This Aerodrome is quite large and level, but the surface is a bit heavy.

September 4.—*Christiania–Copenhagen*, 350 *miles. Time*, 3 *hrs.* 40 *mins.*

From Christiania to Gottenburg there are no landing grounds, but at the latter place what looks to be a fairly good landing ground exists. A landing was made in a field at Helsingborg owing to low cloud, storm and rain, but after a 50-min. wait, conditions improved sufficiently to enable the flight to be continued over the sea to Copenhagen at about 50 ft. above the water.

September 5.—*Copenhagen–Berlin*, 240 *miles. Time*, 3 *hrs.* 20 *mins.*

The short sea route, *via* Schwerin, was followed, and a landing made at the Aerodrome (now quite good) due west of Berlin in the fork of the main lines. Every courtesy was extended by the aviation authorities, but the only petrol obtainable was very poor and heavy, and again the engine revs. suffered.

September 7.—*Berlin–Warsaw*, 350 *miles. Time*, 3 *hrs.* 40 *mins.*

The Aerodrome at Warsaw is good and close to the town, but as no sort of accommodation was procurable, the party had to spend the night in the Turkish Baths! Here a delay occurred in the resumption of the flight owing to the Aerodrome Commandant being *en fête*, and until his return on the next morning the machine was not allowed to proceed, being guarded meanwhile by a cordon of Polish troops.

September 9.—*Warsaw–Prague*, 350 *miles. Time*, 3 *hrs.* 40 *mins.*

The Aerodrome at Prague is both military and civil, and every accommodation exists, and all help was gladly given.

September 10.—*Prague–Vienna*, 180 *miles. Time*, 2 *hrs.* 40 *mins.*

The Aerodrome at Vienna is good, but runs in ridges from north to south. The travellers were very well treated, but found the petrol dirty and mixed with water.

September 11.—*Vienna–Klagenfurt*, 140 *miles. Time*, 2 *hrs.*

Owing to the Austria-Hungary hostilities it was decided to go to Venice not *via* Gratz, but down the valley to Klagenfurt. This involved flying down a narrow valley at a height of 5,000 ft. with mountains towering 8,000 ft. above. As soon after leaving Vienna, one magneto cut out, it was decided to land at Klagenfurt. The Aerodrome is quite good and very large, with a fair surface except near the hangars.

September 12.—*Klagenfurt–Venice*, 160 *miles. Time*, 2 *hrs.* 20 *mins.*

As the Aerodrome at Klagenfurt is 2,000 ft. above sea level, the start planned for 11 a.m. had to be postponed till the

afternoon, with a load of 600 lbs., plus pilot and fuel, the machine would not unstick. The flight onward embraced several very narrow valleys, with the clouds at times so low overhead as to give one the impression of flying down a tunnel. The landing was made at the Lido Military Aerodrome, near Venice, where every courtesy was received from the Italian officers.

September 13.—*Venice–Brescia*, 100 *miles. Time*, 1 *hr.* 20 *mins.*

No petrol being procurable in Venice, an Italian officer kindly volunteered to accompany the machine to Brescia, in order that there should be no difficulties with the authorities. This meant increasing the load of the machine by another 150 lbs., but with the help of a steep concrete gradient, the get-off was effected. The machine landed at the Ghedi Aerodrome, and it being too late to continue that evening, the Italian officers did their best to entertain the travellers. So well did they succeed that the only untoward incident of the trip occurred, a most enjoyable motor-car drive by moonlight, culminating in the whole party being upset in a ditch at 50 m.p.h., fortunately without serious accident.

September 14.—*Brescia–Milan*, 60 *miles. Time*, 50 *mins.*
Milan–Nimes, 280 *miles. Time*, 4 *hrs.* 20 *mins.*

The route followed was *via* Genoa and then along the Mediterranean to Nice, so that the full beauty of this coast was seen. Between Genoa and Nice there is hardly any possible landing ground. There are two or three spots where one might get down, but not off again. The Aerodrome at Nimes is quite good, but a sharp look out must be kept for pupils from the flying school on solo flights.

September 15.—*Nimes–Paris*, 390 *miles. Time*, 4 *hrs.* 40 *mins.*
September 16.—*Paris–Stag Lane*, 270 *miles. Time*, 3 *hrs.*

This completed what is probably the longest business trip by air yet undertaken.

LONDON TERMINAL AERODROME

Monday Evening, October 3, 1921

TODAY begin winter services on many of the air-lines.

Late afternoon machines, which have been running through the summer, are all cancelled now because with the change to ordinary time it would be dark before many of them could finish their journeys.

In France, however, summer-time is still in force, and some peculiar results ensue. The Handley Page due to leave Paris at 11.15 a.m. was, for instance, actually signalled as having left at 10.15 a.m. and, until it was realised that the time in the two countries was an hour different, the message was certainly puzzling.

The time-tables of the various services are now as follows :—

Handley Page Transport.—Leave Croydon, 12.30 p.m. Leave Paris, 12.30 p.m.

Instone Air Line.—Leave Croydon, 12.15 p.m. Leave Paris, 12 noon.

K.L.M. (Royal Dutch Air Service).—Leave Croydon, 10.30 a.m. Leave Amsterdam, 10.30 a.m.

Grands Express.—Leave Croydon, 12.45 p.m. Leave Paris, 12.45 p.m.

Messageries Aériennes.—Leave Croydon, 10 a.m. and 1 p.m. Leave Paris, 10 a.m. and 1 p.m.

S.N.E.T.A. (London-Bru sels).—Service suspended temporarily.

"Airway" business has been rather brisker this last week. Passengers have increased in numbers slightly, and all lines have reported better bookings.

Handley Page Transport seem hardly to have felt the effects of the recent "slump" and, with one or two exceptions, are still carrying full loads.

The Handley Page "W.8" is still undergoing tests and alterations, and the date of her actual appearance on the service is still uncertain. It would have been useful if this machine had been available on Saturday, when the Handley Page people had to transfer several surplus passengers to the Grands Express.

Celebrities on the "Airway"

On Friday Mrs. Asquith, her daughter Princess Bibesco, and her son Mr. Anthony Asquith were among the passengers on the Handley Page from Paris. It will be remembered that they had made the outward journey to Paris by air.

Another celebrity who, during the week, used the aeroplane as a convenient vehicle for getting rapidly from point to point was the inimitable Mr. "Charlie" Chaplin. He hired a special machine from Messageries Aériennes in Paris, and flew from Le Bourget to Lympne. The start of this flight was kept remarkably quiet. Even the pilot, M. Le Mens, did not know who his passenger was until Mr. Chaplin arrived on the aerodrome. All the same, and despite this secrecy, there was the usual crowd of newspaper men and photographers at Croydon to see the film star in. They all had rather a shock when the information came through that he had stopped short at Lympne.

One of the Messageries Aérienne Breguets crashed on the aerodrome while landing last Wednesday. Apparently the pilot misjudged his height, and caught with his undercarriage one of the trees in the hedge near the level-crossing in Plough Lane, following which the machine struck the ground nose-down and turned over. There was only one passenger in the machine. He was cut about the face, but was able to proceed to his destination.

The Fokker "2" Comes to Croydon

The K.L.M. not only altered the times of their service today, but had also a change from the usual machine, Mr. Olley having brought over from Holland an "F.2."

This machine was the forerunner of the "F.3," but, beyong the single wing, there is little resemblance between the two types. The engine of the "F.2" sticks out in front of the wing for what appears an enormous distance. The pilot has a big, roomy, wind-screened cockpit, which looks like the chart-house of a steamer; but the passengers are cooped up in a tiny cabin which would hardly seem to give them breathing-space. The "F.3" is a very decided improvement.

I hear that one of our pioneer "airway" pilots has just signed a contract to fly, for a period of 12 months, the D.H.6 which the Marconi Company use for experimental work.

Owing to the absence of Mr. Powell, who was on leave, the Instone Air Line found themselves temporarily short of a pilot on Friday. Mr. Holmes and Mr. Robins were both in Paris, and Mr. Chattaway is not at present flying. A "special" to Paris being required in a hurry, Mr. Shaw was approached. He flew the Instone D.H. 4A to the French capital on Friday afternoon and brought it back in 1 hour 50 minutes on Saturday morning. Mr. Shaw is, as a matter of fact, gradually returning to flying. In addition to little trips like the above, he is testing for the Disposal Company, and also "ferrying" machines from Liverpool to Croydon for them.

The Shell-Mex petrol-pump, now in full working order, is busily engaged upon filling aeroplanes with the best "Shell." It is so easy in operation that one small boy works it. Why not, one might ask, add to the display of aerodrome uniforms by putting the boys who operate these pumps into buttons?

A Real "Air-Lighthouse" at Lympne

Mr. Leysmith is still away at Lympne, superintending the erection of searchlights. I understand, now, that Lympne is to be equipped with a flashing light. This is to be fitted to the summit of a 50-foot tower, and will be a proper "lighthouse" for airmen. The Croydon aerodrome light, by the way, is to be removed to some prominent position on hills near by, and the cone-light will be used to identify Croydon.

On Friday morning, shortly after 10 o'clock, a Sunbeam test-chassis drove up to the aerodrome with a case of gears for the 350 h.p. Sunbeam racing car which was running in a contest in France on Saturday. The request for the gears did not reach the Sunbeam works in Wolverhampton until 11.30 p.m. on Thursday night, after the last train to London had gone. The gears, hastily assembled, left Wolverhampton by motor-car at 3 a.m. on Friday morning to catch the 10.30 a.m. air express for Paris, and the driver got them to Croydon in time.

He explained, though, after his arrival, that there had been thick fog all the way from Wolverhampton to London, and that he had experienced the utmost difficulty in keeping to the road in his race against time.

The airship mast is now about half-way down. Since Thursday night red obstruction lights have been placed at the top of what is left of it. Several local dealers have been asking if they could buy the wood of the mast cheaply. But the mast and its gear are, of course, to be stored at Cardington.

Captain Muir, of the Surrey Flying Services, was occupied with joy rides on Sunday, but the business was not brisk enough to satisfy him. There was quite a large crowd, but, according to Captain Muir, they were, at any rate from the view-point of joy-riding, "wrong 'uns."

FLIGHT

ROYAL AERONAUTICAL SOCIETY NOTICES

Election of Members.—The following Members were elected at a Council Meeting held on September 20th :—

Associate Fellows :—Wing-Cmdr. H. R. Busteed, O.B.E., A.F.C.; Herbert Carrington, B.Sc.

Student :—G. Reid.

Member :—W. H. Tripp.

Paris Air Congress.—In response to an invitation received from the French Air Attaché, the Council have nominated the Chairman (Lieut.-Col. M. O'Gorman) and the Secretary, to act as their representatives at the International Air Congress to be held in Paris during November.

Lecture.—The inaugural meeting of the 57th Lecture Session will commence at 5.30 p.m today (Thursday, October 6th), when a paper on "Aeroplanes in Tropical Countries" will be read by Air-Commodore H. R. M. Brooke-Popham, C.B., C.M.G., D.S.O., A.F.C., Vice-Chairman.

Students' Discussion Meetings.—Dr. L. Bairstow presided at a meeting of Students held at the Society's Offices on September 19, when it was decided provisionally to hold meetings in the Library at 7 p.m., on the second Thursday in each month. These meetings will be for Students only, with a member of the Society in the chair, and at each a discussion will be inaugurated by the reading of a paper by a Student. These papers will be adjudicated upon by the Council at the end of the Session, and the Pilcher Memorial Prize for Students awarded to the one which is considered to be the best. It was decided not to elect any officers for the Students' Section at the moment, with the exception that Mr. Stanley Evans was invited to continue to act as Honorary Secretary *pro tem.*

The following promises of papers were received :—

October 13th.—T. A. Kirkup on "A Comparison of Different Types of Aerofoils."

November 10.—W. L. Le Page.

December 15.—Colin Daniels.

January 26.—S. R. Irvine.

All papers must be in the Secretary's hands at least three clear days before the date of reading.

Library.—The following books and pamphlets have been received and placed in the Society's Library :—"A Text-Book of Aeronautical Engineering : The Problem of Flight" (3rd edition), by Dr. H. Chatley ; "Kite Balloon Winch Manual" (Air Publication 817) ; "An Introduction to Physics for Technical Students," by P. J. Haler and A. H. Stuart ; "Who's Who in Engineering," by the Compendium Publishing Company.

W. LOCKWOOD MARSH, Secretary

THE COUPE DEUTSCH

IT cannot truthfully be said that the race for the Deutsch Cup at Etampes on October 1 was a great success. Italy and this country were represented by only one machine each, while France had made full use of the rules for the race by entering three machines. Thus from the start, apart from any relative merits of the machines, France had a three-to-one chance as against either of the other two countries and a three-to-two against the field. Even then, except for the troubles which beset the other two countries' representatives, the French pilots would have had a hard fight of it, as both Brack Papa's Fiat and James's Mars I proved very fast indeed. How fast exactly one cannot say with any degree of accuracy, but sufficiently fast to prevent the Frenchmen from having a walk-over. Unfortunately the race was robbed of much of its interest by the various mishaps which befell the competitors. It is, however, fortunate that the race, such as it was, did not contribute any more fatal accidents.

As France still had four machines entered for the race after the de Monge had been crashed, there should have been elimination trials on September 28. The Hanriot, which was to have been flown by Rost, was not, however, ready until that date, and M. Hanriot, refusing to let Rost's first test flight be also an elimination flight, withdrew the monoplane, as he considered it unfair to let a pilot fly an untried machine in a race. While admiring his standpoint and entirely agreeing with him in his decision, we must admit that the absence of the Hanriot was a disappointment, as it was fairly certain to have beaten the G.B. Nieuport biplane flown by Lasne, and there thus would have been three new mschines in the race on the French side.

The Race

The first man to start was Sadi on one of the Nieuport-Delage "Sesquiplans." He got away about a quarter to ten in the morning, and reached the turning point at la Marmogne in about nine minutes (giving a speed of nearly 207 m.p.h.). As the minutes passed and Sadi did not return, great anxiety was felt for his safety, and search parties went out in motor-cars to look for him. After about twenty minutes' absence Lasne, who was one of the search party, returned with the information that Lecointe had crashed near Toury, and was injured, although not, it was thought, fatally. Later this proved to be the case, and, apart from cuts and brusises, Sadi was thought to be in no danger. It appears that his propeller burst, and he had to make a forced landing. How he escaped being killed while landing in a field at about 100 m.p.h. is a mystery. His machine was smashed, but Lecointe, to the infinite relief of everybody, is safe.

The next to start was Brack Papa on the Fiat with 700 h.p. Fiat engine. After flying for about half an hour, and covering 150 km. in 30 mins. 19 secs. (184 m.p.h.) he had to force-land owing to a leak in the petrol system. He made a safe landing near Ruau.

James on the Mars I, Napier 'Lion" engine, started shortly after three p.m. He covered the first out-and-home lap in fast time, but shortly after starting on his second lap he was seen to be returning. He made a priceless landing, and it was learned that he had had to give up as he noticed the fabric of the top plane was beginning to lift. It was fortunate that he discovered this in time, otherwise there might have been another bad accident owing to this cause. Quite possibly the "Titanine" dope helped materially in holding the fabric together until a landing could be made. James made the outward journey to la Marmogne (50 km.) in 11 mins. 12⅕ secs., corresponding to a speed of 166 m.p.h., and the return trip in 10 mins. 57⅘ secs. (171 m.p.h.), and as he was probably not going all-out until by the time he discovered the fabric lifting, it will be seen that the Mars I is capable of a very good speed. We understand that it is intended to have the machine officially tested over the kilometre course, timed by the official French time-keepers. It will be interesting to see the result.

With Lecointe, Brack Papa and James out of the race, there was little interest in the rest of the proceedings. Kirsch flew the course on the Nieuport-Delage "Sesquiplan," his time for the 186 miles being 1 h. 4 mins. 39 secs., or at an average speed of 173 m.p.h. Lasne on the Nieuport biplane was second, taking 1 h. 9 mins. 55 secs. to cover the distance. The race will presumably therefore be held in France again next year.

To 40,800 ft.

A NEW world's record for height was established on September 28 by the American pilot Lieut. J. A. Macready, who reached a corrected height of 40,800 ft. The altitude indicated by the altimeter was 41,200 ft. The machine used was the Lepère biplane, fitted with a supercharged Liberty engine and a variable pitch propeller. Lieut. Macready, who was wearing an electrically heated suit and provided with oxygen flasks, experienced no difficulty until he was well above 30,000 ft. At about 39,000 ft. the oxygen supply stopped, probably through ice from the aviator's breath forming in the pipe. However, he carried a spare flask of oxygen which he connected up to his mask. At the maximum height reached the machine was all but uncontrollable, and the pilot stated that he felt groggy, while he was also worried by ice forming on the inside of his goggles.

The Manston Crash

A VICKERS-VIMY biplane, piloted by Flying Officer L. W. Beal, and carrying four mechanics named Curtis, Reeve, Thrupp and Revell crashed near Manston, Kent, on October 3. All the occupants were killed. Details of the disaster are at the moment not available. Sergt. Grennan of the R.A.F., who was on holiday in the vicinity, attempted to render assistance, but was beaten back by the flames.

The G.-B. Balloon Race Result

THE official results of the Gordon-Bennett Balloon Race are now published. Capt. Armbruster, representing Switzerland, is the winner. Mr. Spencer (England) is second, and Squadron-Leader Baldwin (England) fourth.

NOTICES TO AIRMEN

France : Temporary Obstruction at St. Inglevert Aerodrome

WORK is in progress at St. Inglevert Aerodrome in connection with the levelling of the ground and the renewal of ground markings. Pilots are, therefore, warned to exercise great caution in landing. *Authority :* French Notice to Airmen No. 36 of September 5, 1921.

(*Where the Notices are abbreviated by us, full forms should be obtained from the Air Ministry.*)

Wireless Direction Finding Stations : British Isles, France, Germany and Italy

THE following details (abbreviated) are substituted for those given in Notices to Airmen, Nos. 17, 30 and 44 of 1921 :—

British Isles.—1. *Stations :*—Berwick (Call Signal, BVG) ; Carnsore (BVZ) ; Croydon (GED) ; Flamborough (BVN) ; Lizard (BVY) ; Pulham (GEP).

N.B.—Aircraft, when within an area northward of the parallel of latitude 51° 10′ 00″ N., and westward of the meridian of longitude 8° 30′ 00″ W., should not ask for bearings from Carnsore, as such bearings from it to aircraft in the above area will probably be unreliable on account of the effect of the coastline, the night error in particular being of considerable magnitude.

2. Procedure to be followed.

France. 3. *Stations* :—Barre de l'Adour (Call Signal, FEU) ; Ben Negro (Tunis) (FUA FUB) ; Bernieres (FEB) ; Berre (FED) ; Bizerte (Tunis) (FEQ) ; Brest-Moulin du Seigneur (FEI) ; Casablanca D.F. (Morocco) (CNP) ; Cherbourg (FUC) ; Djidjelli (Algeria) (FEJ) ; Gris-Nez (FEN) ; Guipavas (FEG) ; Kenitra (Morocco) (CNK) ; Lorient (FUN) ; Ouessant (FEO) ; Penmarch (FEP) ; Point du Raz (FER) ; St. Nazaire (FEZ) ; Sfax (Tunis) (FUS) ; Soubise (FES) ; Toulon-Liberte (FUT) ; Treguier (FET).

N.B.—I. French D.F. Stations normally use the wave length of 450 metres ; they also take bearings on 800 metres, and in exceptional cases on 600 metres, but the use of this latter wave will shortly be discontinued.

The stations keep watch and answer calls on the 600 metres wave, but transmit bearings on 450 metres, with the exception of Toulon, Ben Negro and Casablanca, all of which transmit bearings on 800 metres.

II. The method to be followed by the aircraft depends on various circumstances, but it should be observed that—

(*a*) Bearings can be taken simultaneously by several D.F. stations on the normal wave of 450 metres.

(*b*) If the D.F. stations are not keeping watch on the same wave, each station should be called separately.

(*c*) If several D.F. stations are specially connected by land telegraph line, one station only need be called (*i.e.*, the nearest transmitting station). The results are sent by this station, each bearing following immediately after the call signal of the station making the observation. *Such connection does not, however, yet exist.*

4. (Method of procedure follows.)

Germany. 5. *Stations* :—Borkum (Call Signal, KBO) ; List (KAO) ; Nordholz (KBQ) ; Wilhelmshaven (KAN).

6. (Procedure follows.)

Italy. 7. *Stations* :—Murano (Call Signal, IRM).

N.B.—Bearings from this station are to be obtained by calling Carbonera ICZ on 600 metres, and are transmitted for Murano by Carbonera.

8. (Procedure follows.)

9. *Cancellations.*—Notices to Airmen, Nos. 17, 30 and 44 of 1921 are hereby cancelled.

(No. 69 of 1921.)

France : Aerodromes, Etc.

PREVIOUS notices to airmen relating to France are amplified and amended as follows :—

1. *Customs Aerodromes.*—(i) *Le Bourget.*—The Customs Office is open daily from 0800 to 1200 and from 1400 to 1800 for the clearance of goods, and from 0000 to 2400 for passengers. The aerodrome is closed one hour after nightfall unless previous notice of the intended arrival of an aircraft has been given, when it is kept open till after the arrival of the machine. (See Notices to Airmen Nos. 98 of 1920 and 36 of 1921.)

(ii) *St. Inglevert.*—The lighthouse is now situated in the north corner of the aerodrome. In hazy weather a searchlight is operated from the south side of the aerodrome. The Customs Office is open daily from 0900 to 1700. Normally, the personnel, excepting the watchman, are not on duty after nightfall. (See Notices to Airmen, Nos. 98 of 1920, 9 and 59 of 1921.)

(iii) *Strasbourg (Neuhof). Military and Civil Customs Aerodrome. Description.*—The landing dimensions are 900 by 900 ms. A white circle, 60 ms. in diameter, is situated towards the S.E. portion of the aerodrome. Pilots are advised to land on the S.E. porcion, the remainder having a rough surface which would be dangerous to fast machines. In the S.W. corner of the ground, mounted on a hut, is a wind indicator, and in the N.W. corner a landing T.

Night Landings.—Two searchlights are installed on the ground, so arranged as to illuminate the landing ground with their beams projected at right angles to the direction of the wind. These searchlights will only be operated if 24 hours' notice is given to the aerodrome authorities of the intended arrival of an aircraft.

General.—No petrol is available on the aerodrome. A certain amount of castor oil and repair facilities are available. The Customs Office is open daily. It is intended for the examination of machines proceeding to or from Southern Germany and countries beyond. The aerodrome is closed at 1830 daily, unless notification of the intended arrival of a machine has been given, in which case, personnel will remain on duty until after its arrival. (See Notice to Airmen No. 36 of 1921.)

(iv) *Dijon. Military and Civil Customs Aerodrome.—Position.*—Latitude 47° 17′ N., longitude 5° 5′ E. Situated 6 kms. S.S.E. of Dijon on the north-east side of the Dijon-St. Jean de Losne road and canal.

Description.—The dimensions for landing are 900 × 600 metres. The altitude of the aerodrome is 221 metres (725 ft.). There are three white wind indicators, one in the northern and two in the southern part of the aerodrome. There are no night-landing marks or night-landing facilities.

Accommodation, etc.—Hangars are available, but no petrol, oil or repair facilities. The Customs Officer is informed of the arrival of aircraft by telephone.

Note.—This Customs station is intended for the examination of aircraft proceeding to or from Switzerland on the route Paris–Lausanne or Geneva. (*See* Notices to Airmen 98 and 104 of 1920.)

2. *Customs Seaplane Station.—Ajaccio. Civil Customs Seaplane Station under the control of the Service de la Navigation Aérienne.—Position.*—Latitude 41° 55′ N., longitude 8° 44′ E. Situated on the Isle of Corsica at the north end of the Bay of Ajaccio, 800 metres north of the Town Hall of Ajaccio, and adjoining the railway station.

Description.—The alighting area is in the Cannes roadstead, which measures approximately 2 kms. in all directions. The sea is calm here even in very bad weather. There is practically no tide, and currents are not noticeable.

Accommodation, etc.—Hangars and a stock of castor oil are available, but no petrol. Small repairs can be carried out. There is one slipway with a minimum depth of 1.4 metres (4.6 ft.) of water over the end, the depth of water in the vicinity being 4.7 metres (15.4 ft.). There is a 4-ton crane on the quay. Three cork mooring buoys are anchored opposite the quay. A 12-metre motor-boat is available.

General.—The Customs Office is open from 0800 to 1200 and 1300 to 1700 hours. The station is always open during the day, but the personnel, excepting a caretaker, are not available at night. (Notice to Airmen, No. 111 of 1920, Paragraph 1 (Ajaccio) is cancelled.)

3. *Civil Aerodromes.—Nimes.*—Petrol can only be obtained in the town of Nimes. Small repairs can be carried out.

Night Landings.—A row of four searchlights has been installed on the north side of the aerodrome. The aerodrome is open daily from sunrise to sunset, the personnel being on duty until 1900 hours. (*See* Notices to Airmen, Nos. 98, 111 and 125 of 1920 and 54 of 1921.)

4. *Previous Notices.*—The following Notices to Airmen are affected :—By para. 1 (i) : No. 98 of 1920 and No. 36 of 1921. By para. 1 (ii) : No. 98 of 1920 and Nos. 9 and 59 of 1921. By para. 1 (iii) : No. 36 of 1921. By para. 1 (iv) : Nos. 98 and 104 of 1920. By para. 3 : Nos. 98, 111 and 125 of 1920 and No. 54 of 1921.

The following is cancelled :—By para. 2 : No. 111 of 1920, paragraph 1 (Ajaccio).

(No. 72 of 1921.)

Aerodromes for Civil Use : Amendments

NOTICE to Airmen No. 56 of 1921 (Aerodromes for Civil Use ; Consolidated List) is amended as follows :—LIST C.

Licensed Civil Aerodromes.—The following should be added :—King's Lynn, Sayers Marsh.

The following should be deleted :—Bembridge (Isle of Wight), Bembridge Farm.

(No. 75 of 1921.)

NOTICE TO GROUND ENGINEERS

Napier "Lion" Engines : Precautions

1. *Type Engines : Compression Ratio.*—Both the Series I and the Series II high and low compression Napier "Lion" engines are approved as airworthy, but special precautions are required to be observed with high compression engines, in accordance with Notice to Ground Engineers No. 6 of 1921. The actual compression ratio of an engine is usually stamped on the name plate and is also noted in the Log Book.

(*a*) *High Compression.*—5·8 to 1 is the standard high compression, and this type of engine is rated at 450 b.h.p. at normal r.p.m.

(*b*) *Low Compression.*—5 to 1 is the standard low compression, and this type of engine is rated at 420 b.h.p. at normal r.p.m.

2. *Fuel.*—It is essential that the fuel used should contain at least 30 per cent. of aromatic hydro-carbons, viz. :—

(*a*) If an Eastern or Borneo spirit is used, it is necessary that 15 per cent. of benzole be added.

(*b*) If an American spirit is used, it is necessary that 25 per cent. of benzole be added.

3. *Connecting Rods.*—Three types of connecting rods have been fitted, viz. :—"*Light*" *type :* Assembly No. 10307. "*Medium*" *type :* Parts Nos. 29881 (Master rod), 25639 (Cap) and 29882 (Auxiliary rod). "*Heavy*" *type :* Assembly No. 10823.

Attention is drawn to the fact that cracking and breaking up of the white metalling in the big ends has occurred with the "Light" type and "Medium" type connecting rods, and it is, therefore, recommended that such rods be replaced, within a period of running not exceeding 50 hours from last overhaul, by the latest strengthened "Heavy" type assembly.

It is further recommended that oil filters be opened up, cleaned and carefully examined after each flight. Should particles of white metalling be found, the engine should be dismantled for thorough examination and overhaul, and, if rods of the "Light" or "Medium" type are found to be fitted, they should be immediately replaced by "Heavy" type rods.

Note.—Where "Light" type rods have to be replaced, new pistons and gudgeon pins will also have to be provided, owing to variation in the diameter of the gudgeon pin.

(No. 10 of 1921.)

THE ROYAL AIR FORCE

London Gazette, September 9

Flying Branch

Sec. Lieut. A. G. Lawe to be Lieut. ; May 22, 1918.

Technical Branch

Sec. Lieut. W. H. S. Elliott relinquishes his temp. commn., and is permitted to retain his rank ; March 23, 1919.

Memorandum

Hon. Sec. Lieut. G. L. B. Wilkinson relinquishes his hon. commn. on appt. to T.F.

London Gazette, September 13

Permanent Commissions

Flight-Lieut. F. G. Sherriff, M.C., is granted a permanent commn., retaining his present substantive rank and seny. ; August 1.

Flying Officer H. E. Walker, M.C., D.F.C., is restd. to the active list from half-pay ; September 11.

Memorandum

Hon. Sec. Lieut. N. H. F. Unwin relinquishes his hon. commn. on appt. to the T.F.

Erratum

Gazette September 2, 1921.—For Smyth-Osborne, read Smyth-Osbourne.

London Gazette, September 16

Permanent Commissions

Flying Officer K. A. Meek, M.B.E., is placed on h.p., Scale A, from August 1, 1919, to August 24, 1919, inc.

Short Service Commissions

Observer Officer A. L. Willcox is granted a short service commn., retaining his present substantive rank and seny. ; December 12, 1919 (substituted for notification in *Gazette* December 12, 1919).

The permission granted to follg. Sec. Lieuts. to retain rank of Sec. Lieut. is withdrawn, with effect from dates indicated, on their joining Army :—T. Jones (Flying Branch) ; August 20. M. R. Skinner (Admin. Branch) August 18.

London Gazette, September 20

Permanent Commissions

Obs. Offr. T. L. Jones is dismissed the service by sentence of Gen. Court Martial ; July 30. Sqdn.-Ldr. R. B. Ward, A.F.C., is restd. to the Active List from h.p. ; Sept. 21.

Technical Branch

Sec. Lieut. (Hon. Lieut.) F. McGuffie is transfd. to Unemployed List ; Feb. 29, 1920. (Substituted for notification in *Gazette*, Oct. 15, 1920.) Sec. Lieut. (Hon. Lieut.) F. McGuffie is restd. to the Active List ; Aug. 2.

Medical Branch

Flt.-Lieut. H. J. Swan relinquishes his temp. commn. on ceasing to be empld., and is premitted to retain rank of Capt. ; July 12. (Substituted for *Gazette*, Aug. 30.)

Memoranda

Hon. Sec. Lieut. G. C. Deroy relinquishes his hon. commn. on joining the Army ; Aug. 5.

Two Cadets are granted hon. commns. as Sec. Lieuts., with effect from the dates of their demobilisation.

Erratum

Gazette of April 30, 1920, page 4,990.—For Pilot Offr. A. G. Lawe read Observer Offr. A. G. Lawe.

London Gazette, September 27

Short Service Commissions

The following are granted short service commns. in ranks stated, with effect from, and with seny. of dates indicated :—

Flying Officers, from Pilot Officers.—R. R. H. Bruce, F. W. Long ; Sept. 2.

Pilot Officer on Probation.—J. G. Shackleton ; Sept. 5.

Flying Officer P. Wilson, M.C., is to take rank and precedence as if his appt. as Flying Officer bore date July 30, immediately following Flying Officer A. P. C. Hannay, M.C.

Flying Branch

The following Flying Officers (Lieuts., Army) relinquish their temp. commns. on return to Army duty :—L. Murphy, M.C. (R. Irish Regt.) ; Aug. 28. R. P. (Phillip) Pope, D.F.C. (E. Surr. R.) ; Aug. 31.

Technical Branch

Flight-Lieut. A. E. Biscoe relinquishes his temp. commn. on ceasing to be empld., and is permitted to retain rank of Capt. ; Sept. 6.

Stores Branch

Flying Officer E. A. Baker, M.C. (Lieut. R. Suss. R.), relinquishes his temp. commn. on return to Army duty ; Sept. 2.

Dental Branch

Flight-Lieut. G. Packham relinquishes his temp. commn. on ceasing to be empld., and is permitted to retain rank of Capt. ; Aug. 20.

Memorandum

One Cadet is granted an hon. commn. as Sec. Lieut., with effect from date of his demobilisation.

London Gazette, September 30

Permanent Commissions

Flying Offr. A. B. Raymond-Barker resigns his commn. and is permitted to retain rank of Lieut. ; Sept. 21.

Short Service Commissions

The follg. are granted short service commns. in ranks stated, with effect from, and with seny. of, the dates indicated, except where otherwise stated.

Flying Offr. from Flight Lieut.—M. S. Marsden ; Sept. 13.

Flying Offr.—H. Ford, D.F.C. ; Sept. 7.

Pilot Offr. on Probation.—C. E. B. Winch ; Sept. 7. *Note.*—Flying Offr. Marsden will be placed at head of list of Flying Offrs., but junior to all officers similarly reduced in rank on grant of permanent or short service commns. Pilot Offr. G. J. T. Bahin relinquishes his commn. ; Oct. 1.

Stores Branch

The follg. are granted short service commns. on probation for Accountant duties in ranks stated :—

Flight Lieuts.—*W. H. Hoille, M.B.E., R. D. Ward-James ; Sept. 5.

Flying Officers.—J. C. Brice, P. D. Chisholm-Taylor, J. C. Christian, M.C., R. G. Dyer, E. K. Greenbow, M.C., D. C. Gribble, W. L. Price, *J. J. T. Rose, F. L. Wood.

Pilot Officers.—*E. Clancy, F. R. Crockford, C. B. Greet, *M. H. Luker, *C. W. Price, A. C. Pritchard, R. G. W. N. Tinley. (*Previously served in R.A.F.)

Note.—The seniority of all officers granted commns. in the Stores Branch for Accountant duties is provisional only. The final seniority list of all officers will be promulgated when the establishment is completed.

Seconding

The follg. Lieuts. are granted temporary commns. as Flying Offrs. on seconding for four years' duty with the R.A.F.—E. G. F. Hall, R.G.A. ; Sept. 7. J. K. Smith, The Lancs. Fusiliers ; Sept. 13.

Flying Branch

Flying Offr. G. C. Huggard (Lieut., Ox. and Bucks. L.I.) relinquishes his temp. commn. on return to Army duty ; Sept. 11. Flt. Lieut. K. H. Brown, D.F.C. (Lieut., Army, retired, late half-pay list and R.F.A.), relinquishes his temp. commn. on ceasing to be employed, and is permitted to retain the rank of Capt. ; Sept. 16. The permission granted to Lieut. L. C. Biddle to retain the rank of Lieut. is withdrawn, with effect from July 4, on which date he joined the T.F.

Administrative Branch

Wing Comdr. G. Hilton, D.C.M. (Maj., K.O.S.B.), relinquishes his temp. commn. on retirement from the Army, and is permitted to retain the rank of Lieut.-Col. ; Sept. 7 (substituted for *Gazette*, Sept. 6.).

Technical Branch

Maj. S. Lambert relinquishes his temp. commn. on ceasing to be employed, and is permitted to retain his rank ; Sept. 6. The follg. Flying Offrs. are placed on the retired list.—F. Polley ; Sept. 21. J. F. Armitt, D.S.M. ; Oct. 1.

Medical Branch

Flying Offr. F. T. Allen to be Flight Lieut. ; July 9.

SIDE-WINDS

FROM a purely selfish point of view we are extremely sorry to hear that Capt. F. S. Barnwell is leaving the Bristol Company to take up a new post as Technical Advisor to the Government of Australia. One had become so used to thinking of Barnwell in connection with Bristol machines, and *vice versa*, that it will seem strange to think of the two as no longer connected. On the other hand, we must congratulate Capt. Barnwell upon his very important appointment, and wish him every success "down under." His always cheerful personality and his interesting papers and lectures will be greatly missed. Members of the Bristol Aeroplane Co. assembled at a farewell dinner to Capt. Barnwell at the Royal Hotel on October 1, to say good-bye to him and to wish him luck. We are sure all our readers will join in that wish.

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BETTER late than never, one is tempted to say, with regard to an eleventh-hour decision of the Shackleton expedition to obtain a Leitner-Watts metal airscrew for use on the Avro Baby. Major Carr did not call on the Leitner-Watts Co. until the day before the "Quest" sailed, but in spite of this fact a propeller has been rushed through and dispatched, to be called for by the "Quest" somewhere *en route*. It is hoped that the steel propeller will withstand better than one of wood the extreme temperatures of the Arctic regions.

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SIR CHARLES BRIGHT AND PARTNERS is the title of a new firm of consulting engineers which has just been established. The new firm has offices at 146, Bishopsgate, London, E.C. 2, and in addition to Sir Charles Bright, F.R.S.E., M.Inst.C.E., F.R.Ae.S., M.I.E.E., R.I.Radio E., M.Inst.T., includes Mr. A. Hugh Seabrook, M.I.Mech.E., M.I.E.E., consulting engineer (late chief engineer and general manager to the St. Marylebone, London, and other electric supply undertakings); Mr. A. J. Stubbs, M.Inst.C.E., M.I.E.E. (late assistant engineer-in-chief to H.M. Post Office); and Lt.-Col. H. W. Woodall, C.I.E., M.Inst.C.E. The name of Bright is known throughout the world in connection with telegraphy and electrical engineering generally. The original Sir Charles Bright was knighted at the age of 26, for the laying of the first Atlantic cable, and the present Sir Charles, the senior partner of the new firm, has been similarly active for many years in land, wireless and submarine telegraphy. Sir Charles is also closely identified with aviation, and sat on the Air Commission of 1916, many of his recommendations being now adopted. He is Vice-President of the Air League and of the Institution of Aeronautical Engineers. The firm will specialise in advising upon the installation of telegraphs, telephones and wireless, and also on electric engineering in general.

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"R.38" Memorial Fund

THE Council of the Royal Aeronautical Society have decided to establish a memorial fund to those lost in "R.38" and previous airships. With the income derived from the capital sum raised it is proposed to encourage investigations into problems connected with airships or allied subjects, the results of such work to be embodied in papers to be read before the Royal Aeronautical Society. It has been decided that the memorial shall take this form, as it is believed that this offers the best means of carrying on the work of those who have perished in the cause of airships.

The Government has decided to suspend all work on airships, and is making no provision for experiment or research. The Council of the Royal Aeronautical Society, however, feel that, unless we are to drop completely out of the race for commercial airship supremacy, it is of paramount importance that some such work should proceed, even though on a small scale. They therefore appeal for subscriptions to the Fund, from which it is hoped to be able to provide an annual grant towards the carrying out of some specific investigation—the nature and importance of the work undertaken depending upon the amount available. Contributions should be forwarded to The Secretary, Royal Aeronautical Society, 7, Albemarle Street, W. 1.

THE second annual reunion and dinner of Seaplane Squadron No. 8, R.N.A.S. (German East Africa 1916-1918) will be held on Friday evening, October 7 next, at The Royal Adelaide Galleries Restaurant (Gatti's), Strand, London, W.C. (opposite Charing Cross Station), at 7.15 p.m., Group-Capt. F. W. Bowhill, C.M.G., D.S.O., R.A.F., presiding. Mufti. Tickets, 9s., obtained from C. S. Thompson, 42-45, New Broad Street, London, E.C. 2.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

Flight-Lieutenants.—A. E. Barr-Sim, M.B., from School of Technical Training (Men) (Inland Area), to R.A.M.C. Training Depôt, Crookham Camp, Aldershot. 19.9.21. P. J. Flood, from Headquarters, Inland Area, to School of Technical Training (Men), Inland Area, on ceasing to be attached to R.A.M.C. Training Depôt, Crookham Camp, Aldershot. 14.9.21. C. R. Richardson, from No. 24 Squadron (Inland Area), to No. 6 Flying Training School (Inland Area). 1.9.21. R. T. Nevill, from No. 45 Squadron (Middle East Area), to Mesopotamian Group Headquarters (Middle East Area). 15.9.21. C. E. Wardle, from R.A.F. Depôt (Inland Area), to Record Office (Inland Area). 1.10.21. H. C. Irwin, A.F.C., to R.A.F. Airship Base (Coastal Area), to command "R.80," on ceasing to be attached to Pulham Airship Station. 31.8.21. H. V. Drew, A.F.C., to R.A.F. Airship Base (Coastal Area), for flying duties with "R.80," on ceasing to be attached to Pulham Airship Station. 31.8.21.

Group Captain.—A. M. Longmore, D.S.O., from No. 3 Group Headquarters (Inland Area), to R.A.F. Depôt (Inland Area). 15.9.22.

Wing-Commander.—Hon. J. D. Boyle, C.B.E., D.S.O., from No. 3 Group Headquarters (Inland Area), to No. 7 Group Headquarters (Inland Area). 15.9.21.

Squadron-Leaders.—R. H. Jones, O.B.E., from No. 3 Group Headquarters (Inland Area), to No. 5 Flying Training School (Inland Area). 15.9.21. T. W. Mulcahy-Morgan, M.C., from No. 3 Broup Headquarters (Inland Area), to Headquarters (Inland Area). 15.9.21. W. Millett, from No. 3 Group Headquarters (Inland Area), to No. 7 Group Headquarters (Inland Area) (to remain attached to R.A.F. Depôt). 15.9.21.

Flight-Lieutenant.—J. Roberts, from No. 3 Group Headquarters (Inland Area), to Headquarters (Inland Area). 15.9.21.

Wing-Commander.—J. Mead, C.B.E., M.C., from Headquarters (Middle East Area), to R.A.F. Depôt (Inland Area) (Supernumerary). 2.9.21.

Flight Lieutenants.—H. G. White, from School of Technical Training (Boys) (Halton), to School of Army Co-operation (Inland Area), for course of Instruction. 1.10.21. W. E. G. Bryant, M.B.E., from No. 25 Squadron (Inland Area), to R.A.F. Depôt (Inland Area) (Supernumerary). Whilst attending course of instruction in Japanese language at School of Oriental Studies. 1.10.21. A. H. Benge, from No. 2 Flying Training School (Inland Area), to R.A.F. Depôt (Inland Area) (Supernumerary). Whilst attending course of instruction in Japanese language at School of Oriental Studies. 4.10.21.

Wing-Commander.—A. Fletcher, C.M.G., C.B.E., M.C., from R.A.F. Depôt (Inland Area), to command Aircraft Depôt, Mesopotamia (Middle East Area). 15.9.21.

Squadron-Leaders.—A. B. Gaskell, D.S.C., to Headquarters (Coastal Area), on ceasing to be attached to School of Military Administration. 13.8.21. R. S. Overton, from Aircraft Depôt, Egypt, to Palestine Group Headquarters (Middle East Area). 15.8.21.

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AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motors

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1920

Published September 15, 1921

27,103. SOC. ANON. DES AEROPLANES G. VOISIN. Friction clutch discs. (153,288.)

34,737. J. NELSON. Airships. (168,275.)

Published September 29, 1921

6,156. MASCHINENFABRIK AUGSBERG-BURNBERG A.-G. Gyroscopic steering apparatus. (138,771.)

11,525. GOODYEAR TYRE AND RUBBER CO. Steering-mechanism of aircraft, etc. (142,467.)

13,943. G. L. O. DAVIDSON. Aircraft blades, planes, aerocurves, etc. (168,364.)

15,613. G. AJELLO. Safety-devices for aircraft. (168,436.)

18,960. G. CAPRONI. Cellular structure of triplanes. (147,016.)

19,444. C. ZEISS. Sighting-devices for aircraft. (147,486.)

24,743. J. PAPIEZ. Helicopter flying-machines. (168,522.)

NOTICE TO ADVERTISERS

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